DOCUMENT RESUME

ED 263 960 JC 860 006

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TITLE Department of Industrial Health and Saftey Promotion: Curriculum Plan.
PUB DATE Nov 85
NOTE 13p.; Graduate seminar paper, University of California at Los Angeles.
PUB TYPE Guides - Classroom Use - Guides (For Teachers) (052)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Curriculum Design; Health Activities; Health Education; *Inplant Programs; Inservice Education; *Labor Education; *Nonschool Educational Programs; *Occupational Safety and Health; *Safety Education

ABSTRACT

The industrial health and safety promotion curriculum described in this paper is intended for an industrial manufacturing plant employing approximately 10,000 people. The paper begins by describing the plant and the workers for which the curriculum was designed. Next, a rationale for having a Department of Industrial Health and Safety program within the organization is presented, highlighting the importance of employees' understanding of their rights and responsibilities regarding their own health and safety. The department's goals are stated next (i.e., to encourage all levels of employees, from executive to assembly line, to reduce the number of health and safety hazards in the workplace; to develop health and safety programs; and to encourage employees to maintain healthful lifestyles), followed by a listing of specific objectives to be attained through employee participation in the curriculum. After identifying the groups for whom the curriculum was developed, the paper provides an annotated list of required and optional courses, which include "Safety on the Job," "Natural Disasters," "Handling Fires," "The Injured Employee," "Environmental Hazards," "The Purpose of Immunizations," "Nutrition and Good Health," "Exercising for Health," "Coping with Stress," "Substance Abuse," and "Parenting." Procedures for implementing the curriculum are outlined next, followed by information on evaluating the achievement of curricular objectives and curriculum revision. (EJV)

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DEPARTMENT OF INDUSTRIAL HEALTH AND SAFETY PROMOTION: CURRICULUM PLAN

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November 1985

Course 431 B
University of California at Los Angeles

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Department of Industrial Health and Safety Promotion
Curriculum Plan

A. Type of Institution

The institution for which this curriculum plan is intended is an industrial manufacturing plant which employs approximately ten thousand people. This curriculum is designed for persons ranging in age from eighteen to sixty-five years and over.

This manufacturing plant is involved in the manufacture of electronic equipment for commercial and government aircraft, as well as other electronic equipment used in other forms of transportation, with the exception of automobiles. Some of these industries for which this plant supplies intricate electronic parts include space exploration and defense.

There are several employee tiers involved in the company. First, there are the executive, or top-level, managers. They are mostly college graduates and their average age is forty-seven. These managers are responsible for administrative and fiscal functioning. Second, there are the mid-level managers who are responsible for the manufacture and quality control of all products produced, sold and shipped. These employees are usually college graduates and have a minimum of four to five years of experience in mid-level management in their specialized jobs. Also, these managers are usually the department heads of production, manufacture, material and quality control. Prior to employment, they have probably obtained an engineering degree. The median age of these employees is forty-two.

The engineers comprise a large portion of the twenty-seven-to-forty age group. The engineers are usually college graduates with an engineering degree, and they are responsible for the design of the products. The design of the products includes specifications that they be safe under the uses for which they are intended, that they be properly tested, and that the correct material be used in their manufacture.

The foremen are another group of management employees. They are responsible for the line employees. These line employees, along with the foremen, are not required to have a college degree. They are responsible for production, shipping, receiving, and for the rejection of parts or products that do not meet required codes. These people are

on hourly wages, and their special technical skills are obtained on the job. They are usually, but not necessarily, high school graduates. This age group median is thirty-six years.

The clerks and secretaries are another group of employees who are generally not required to have a college degree, although, as stated in their job descriptions, some college work is helpful. Their age range is from twenty-four to sixty-five years old.

B. Rationale for the Curriculum

The Department of Industrial Health and Safety Promotion of this organization focuses on prompting the belief that all employees be able to maintain optimum health. Another focus of this department is that knowledge regarding safety is essential in order that employees perform their jobs under the least harmful conditions. Also, the Department of Health and Safety Promotion believes that it is the right of each individual employee to be able to perform his/her job in an environment which meets the minimum code standards of the Federal Occupational Safety Standards Health Act of 1970, and which, in fact, surpasses the minimum required by this act (Brown, 1982). The concerns of this department are that each individual employee know and understand his rights and responsibilities in terms of job-related safety and his/her maintainance of optimum health. The employee should be aware of the facilities available to him/her to fulfill these rights and responsibilities. It is also important that employees practice safety on the job, as well as in their private lives, so that the lifestyle of each individual employee is enhanced through the practice of beneficial health habits and through awareness of safe practices on and off the job.

C. Statement of Goals

The goal of this department is to encourage all levels of employees, from exective to assembly line, to reduce the number of safety and health hazards in the workplace, with the intention that these practices be carried over to other environments in which the employee is involved. Another goal is to develop new programs for providing safe and healthful working conditions. A third and final goal is to encourage employees to maintain their health status through practice of healthful lifestyles. Inherent in these goals is the presumption that employees and employers will benefit from such programs, in that employeee safety will be foremost in everyone's mind, and that these two groups will work together to minimize accidents, thereby saving lives, plus reducing trauma and disability. These factors should lead to increased job satisfaction, reduced sick-time usage,

reduced benefits in job-related injury, increased productivity, and an improved health status of each employed individual.

D. Objectives

As a result of participation in the curriculum offered by the Department of Industrial Safety and Health Promotion:

1. Seventy-five percent of individual employees, by the end of one year, will decrease the use of personal sick time by one-third.

2. Seventy-five percent of all on-the-job-related accidents will decrease in number and severity after one year, also reducing the number of deaths, as well as reducing the amount and degree of disability due to job-related accidents.

3. Afte five years time, the job satisfaction of seventy-five percent of the employees will be increased, as based on the decreased turn-over rate.

4. The cost of the increased budget necessitated by the curriculum proposal of the Department of Industrial Safety and Health Promotion will decline in increments, so that at the end of five years the program will be self-supporting as evidenced by:

   a. Increased productivity of employees
   b. Increased quality in products produced
   c. Increased company profits

5. At the end of one year, the health status of eighty percent of all employees will be enhanced as evidenced by their decreased use of insurance benefits in out-patient services, as well as in-patient hospital services. The use of these services will be decreased by thirty rcent.

6. At the end of three years there will be a fifty-percent decrease in insurance benefit expenses for

   a. chronic illness,
   b. acute illness,
   c. in-patient and out-patient psychiatric services, which includes substance abuse,

as evidenced by employee ability to recognize or detect symptoms of disease at an early stage, thereby seeking early treatment and reducing the complications of disease.

7. At the end of two years, there will be a seventy-percent decrease in communicable diseases amongst employees, as evidenced by decreased colds, flu, pneumonia, and other common diseases, as these people learn to avail themselves of immunizations and become able to show proof of immunization through company and personal employee health records.

E. Students for Whom Intended

The Department of Industrial Safety and Health Promotion recognizes the need for improvement of education in safety-related practices for all employees of this organization. This education should begin at the time the employee is first hired. The department also recognizes that health enhancement is the right of all individuals and all employees who have completed their six-month probationary period should begin to enroll in the classes offered in the curriculum.

Because the curriculum encompasses one year, and in some cases is ongoing, it will be necessary for some individuals, especially those in the twenty-to-sixty age group, to be able to stay in classes for the entire time of their employment. These classes will not apply to all employees, thereby eliminating the need for one-hundred-percent compliance. This does not mean that anyone will be turned away from classes, but, if class sizes are filled, postponement for taking the class will be asked of those for whom it is not required.

As per instructor preference, each class should have approximately twenty-five students. Class times will be available during two shifts of work; there will be no classes offered during the graveyard shift, with the exception of classes that are mandatory regarding safety.

F. Annotated List of Courses

The requirements for all employees will be:

Class 1A: Safety on the Job: Includes audio visual aids and some role-playing with students and instructor. This course will emphasize the handling of hazardous material and will cover how to cope with emergencies relating to improper handling of such materials. Eight one-hour classes, offered once a week.

Class 1B: Natural Disasters; Earthquake Preparedness: What to do in case of earthquake or other major disaster. Includes audio visual aids and role-playing with instructor. Guest lecturer. Four one-hour classes offered once a week.

Class 1C: Handling Fires in Your Area: What type of extinguisher for which type of fire. Calling the fire department. Visual aids, role-playing. Guest speaker will be the Fire Department Chief. Nine one-and-one-half-hour classes once a week.

Class 1D: The Injured Employee: First-aid for burns, fractures, lacerations, head injury, spinal injury, etc. What to do until professional, nurse, or physician arrive

The employee who becomes ill at work. Institute CPR. Who assesses what? Six one-hour classes once a week. Audio visual self-paced with nurse available for questions and clarification. Laboratory for CPR practice, workshop.

Class 2A: Environmental Hazards: Contaminants such as cigarette smoking; protective gear used in handling lab materials which could be nephrotoxic, hepatotoxic, or toxic to any organ system; inhalants, etc. Audio visual self-paced. Department head available for questions and further information. Pamphlets and other relevant printed material. Eight one-hour classes once a week.

Class 2B: The Purpose of Immunizations: How do they work? Why are they necessary? Audio visual materials on immunizations from infancy to adulthood. Pneumonia vaccine for the older individual. Keeping records of family immunizations and diseases. Keeping yourself and your family protected. Offer immunizations for flu, pneumonia and tetanus at low cost. Provide records for individual employees. Instructed by nurse. Five one-hour classes.

Executive and managerial classes mandatory:

Class 2C: Nutrition and Good Health: Reduce weight by eliminating empty calories. Fresh fruit vs. pastry for breakfast or snacks. The hidden costs in fast foods. Eating to live! Learning to eat sensibly and only when hungry. Detecting eating disorders. When to get help. Weigh in at beginning of program. Select desied weight. Weigh in each time. Reward self for achieving desired weight. Reward self for losing weight and maintaining weight loss at end of six months, one year, and two years. Use of contracts for weight control. Nutritionist as guest lecturer, along with audio visual aids. How to shop, when to shop for groceries. Ordering low-calorie, nutritional food when dining out. Twelve one-and-one-half-hour lectures for twelve weeks. Class offered every three months.

Class 2D: Exercising for Health: Aerobic exercise for beginners, intermediate, and advanced. Three forty-five-minute classes per week mandatory. Offered daily, four times a day, through aerobic instructor and videotape. (ongoing)

Class 3A: Coping with Stress: Instruction in relaxation techniques, deep-breathing, meditation. Text and audio visual material. Instructor and student role playing. Class instructor to be Adult Nurse Practioner especially trained in above-mentioned modalities. Group sessions available. Class meets one hours a day, each day, for three weeks. Repeated every twelve weeks.

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Class 3B: Substance Abuse: Alcohol, drugs, prescribed medicine, over-the counter medications, street drugs, etc. What are the consequences to individudal, family, family structure, finances, etc? How drugs affect the human body, which are addictive. How to detect symptoms of addiction. Community agencies where help is available. List of community agencies provided, along with listing of hot-line numbers.

Optional classes:

Class 4A: Parenting; of the young child, of the adolescent, of the teenager, and of the young adult. Child development stressed.

G. Procedure for Implementation

To set up the curriculum, the following steps need to be established in chronological order:

1. Administer a pre-test or a set of pre-tests. The purpose of the pre-tests is to assess what the employees already know about health and safety and to determine which employees will benefit the most from what classes. Revise pre-tests whenever necessary.

2. Assign the pre-test taking and reporting as the responsibility of each department head.

3. For a facility of this size, a physician and two adult nurse practitioners are recommended. The physician needs experience in emergency and industrial medicine; however, he/she need not be a full-time employee of the institution. His services may be contracted or sub-contracted.

4. The two adult nurse practitioners would do annual examinations on the employees, the first one being a complete pre-employment physical examination. Should any abnormalities be found among the employees, these adult nurse practitioners would refer these individuals to the contract physician, their own private medical doctor, or to someone of the assessed individual's preference. The adult nurse practitioners would supervise the activities of the industrial nurses. The adult nurse practitioners could also be contract professionals, or they could be full- or part-time employees.

5. Since this industry operates twenty-four hours a day, there would be three full-time employee industrial nurses. Their duties would encompass the ability to handle on-the-job illness or injury. In the event of a minor disaster, the two adult nurse practitioners and the two

off-duty industrial nurses would be required to come in to work.

6. Specialists in their fields, such as dieticians, firemen, fire chiefs, substance-abuse counselors, social workers, aerobic-exercise instructors, ecologists, and health agencies concerned with environmental hazards would be contracted for when feasible. When permitted, and feasible, video-recordings would be made of their specific instruction.

7. There should be an area set aside for an exercise room with various equipment normally found in a gym.

8. Pamphlets and other written information about health, stress, nutrition, lifestyle, and exercise should be available for employees to read and to take home. Resource persons of a primary nature would be the instructor of the class, followed by the industrial nurse on duty.

9. There should be a color video-cassette recorder camera and monitor with blank tapes in a learning laboratory, so that employees could role-play various situations. Also, this lab should provide, in another room or screened-off area, a Resucie-Annie so that students could practice CPR on a one-to-one basis or on a two-to-one basis. This would occur after the designated classes have been completed. A certificate of CPR ability would be issued to each employee after completion, and these would be renewed yearly.

10. In the same area as this laboratory, there would be a classroom with a capacity for twenty-seven to thirty students. Here, guest lecturers would assemble their audiences for specific instruction.

H. Evaluation Data Needed

As previously mentioned, a pre-test set would be done on each employee, one pre-test for each category of subjects to be offered. A sign-up list would be mandatory at each class session, whether instructor-taught or individual paced learning. Those employees not having taken three or more courses by the end of their probationary period would be counseled by their department head. The department head would be responsible for keeping these records. Upon completion of each course taken, a post-test would be administered, and the scores of the pre-test would be compared with those of the post-test. The employee would be advised of his scores, and, if improvement was not sufficient, the employee would be asked to repeat the course or be given the option of asking questions in written form of the nurse-on-duty for his shift worked. The nurse would either retrieve the answers for the employee or repeat a

class to emphasize important points to a group no smaller than five students and no larger than fifteen students. Again, the post-test would be taken.

Evaluation Scheme

1. Objective 1: Seventy-five percent of ind vidual employees, by the end of one year, will decrease the use of personal sick time by one-third.

At the end of one year, the sick time used by each employee would be tabulated by computer and compared to the previous year's sick time. Each employee who reduced his sick time would be given an extra day off with pay. Sick time would have to be reduced by thirty percent, and these incentives would be declared at the time of presentation.

2. Objective 2: Seventy percent of all on-the-job related accidents will decrease in number and severity after one year, also reducing the number of deaths, as well as reducing the amount and degree of disability due to job-related accidents.

On-the-job accidents would be calculated as per sick time. Those departments having decreased their number, degree and acuity of on-the-job accidents would receive an award. The department which decreased these mishaps by the greatest amount would receive a trophy. The awards and trophies would be given yearly. Again, these incentives would be announced at the end of the year, at the time of presentation.

3. Objective 3: After five years, the job satisfaction of seventy-five percent of the employees will be increased as based on the decreased turn-over rate.

Each employee who is productively and actively employed at the end of one year, and who has satisfied the requirements of the Department of Industrial Safety and Health Promotion, would receive a small bonus ($25-$50). At the end of five years' employment, the employee would receive a personalized, initialed fourteen-karat gold pin, along with a small bonus ($100), and this employee would begin to take a three-week vacation yearly, as opposed to the previous two allowed. Employees who left employment would fill out a questionnaire as to their reasons for leaving, what they liked best about the company, and to what they most objected. Where feasible, these employees would be followed by questionnaires every two years to see if they remained in the industry and to keep track of their employment record. In other words, did we lose valuable employees?

4. Objective 4: The cost of the increased budget necessitated by the curriculum proposal of the Department of Industrial Safety and Health Promotion will decline in increments, so that at the end of five years the program will be self-supporting as evidenced by:

a. Increased productivity of employees
b. Increased quality in products produced
c. Increased company profits

Increased work productivity will be demonstrated graphically by placing in each employee folder what his productivity level is. At the end of five years, the productivity level should have increased by ten-to-twenty percent, which is better than the national average, and, when compared, better than the company average for the previous year.

Also, the quality of the products would be improved in that fewer products would be rejected, first by quality control, and particularly by customers, other industries, and the government. This record-keeping would be ongoing, especially with graphic material showing how the company was faring quarterly, annually, and in five years.

Because of increased worker productivity, and also because of improved quality of products being shipped, with fewer products being rejected, the compaany would continue to show increased profits.

5. Objective 5: At the end of one year, the health status of eighty percent of all employees will be enhanced as evidenced by the decreased use of employee insurance benefits in out-patient services as well as in-patient hospital services. The use of these services will be decreased by thirty percent.

Records will be kept by the employee, by the Department of Industrial Health and Safety Promotion, and by the employee's department head as individual employees require in- or out-patient services. There will be a significant decrease in insurance claims overall to a figure around thirty percent. At the time for the annual physical provided by the adult nurse practitioner, employees will be more knowledgeable about health, diet, exercise, relaxation and recreation. They will be participating in exercise classes and other self-help groups which employees will form as they identify those workers among them with similar problems, such as asthma, co d, bronchitis (chronic), diabetes, etc.

6. Objective 6: At the end of three years, there will be a fifty percent decrease in insurance benefit expenses for:

a. chronic illness

b. acute illness

c. in- and out-patient psychiatric services, which includes substance abuse,

as evidenced by the employee ability to recognize or detect symptoms of disease at an early stage, thereby seeking early treatment and reducing the complications of disease.

Those employees with chronic illness, because of their participation in classes, would be able to recognize early symptoms of distress, and they would know what measures to take to prevent their disease from evolving into a full-blown disability by using deep-breathing exercises, relaxation techniques, blood and urine testing for diabetes mellitus (with resultant diet modification), etc. If they continued to have difficulty, they would consult the nurse on duty for help, and, if necessary, she would refer them further to a nurse practitioner, their private medical doctor, an urgicenter, or an emergency department. This referral to use of outside acute-care our out-patient facilities would decrease by thirty percent. In three years, employee claims for insurance benefits would decrease.

7. Objective 7: At the end of two years, there will be a seventy percent decrease in communicable diseases among employees, as evidenced by decreased colds, flu, pneumonia, and other commom diseases, as these people learn to avail themselves of immunizations and become able to show proof of immunization through company and personal employee health records.

Employee health records would be kept by the Department of Industrial Health and Safety. At annual intervals, when the physical would be due, the nurse would administer the necessary immunizations. If the employee failed to comply with the requirement after three months, the department head responsible for that employee would be notified and the employee would be given a six-week opportunity to comply with the requirement. If the employee ignored the warning, his merit raise would be denied until he had complied with the directive.

As most employees would be more knowledgable about the transmission of disease, they would be immunized and would further ensure that their families be immunized. Being aware of the incubation period of colds and other respiratory infections, they would stay away from the workplace at that time, consequently avoiding flu epidemics, etc., in the workplace.

I. Procedures for Curriculum Revision

The curriculum would be revised as feedback was received from the individual employees as to what programs were useful and which classes were not. These programs

would be scored on a scale of one to five, five being the most useful and one being the least useful. Employees would be polled as to suggestions for other pertinent programs which would be useful. These suggestions would be reviewed by the Department of Industrial Safety and Employee Health Promotion. This department would then devise additional programs that would best fit the health needs of the workplace community.

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